



OIL ANALYSIS REPORT

| | |
|-----------------|----------|
| WEAR | NORMAL |
| CONTAMINATION | ABNORMAL |
| FLUID CONDITION | ABNORMAL |

Machine Id
9012
Component
Diesel Engine
Fluid
VALVOLINE PREMIUM BLUE 2000 15W40 (--- QTS)

RECOMMENDATION

We recommend that you drain the oil from the component if this has not already been done. We recommend an early resample to monitor this condition. Please specify the component make and model with your next sample.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | WC0811890 | WC0758852 | WC0579988 |
| Sample Date | | Client Info | | 12 Aug 2023 | 26 Jan 2023 | 10 Jul 2021 |
| Machine Age | mls | Client Info | | 0 | 0 | 15000 |
| Oil Age | mls | Client Info | | 15000 | 15000 | 0 |
| Filter Age | mls | Client Info | | 0 | 0 | 0 |
| Oil Changed | | Client Info | | N/A | N/A | Changed |
| Filter Changed | | Client Info | | N/A | N/A | N/A |
| Sample Status | | | | ABNORMAL | MARGINAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >100 | 17 | 5 | 9 |
| Chromium | ppm | ASTM D5185m | >20 | <1 | <1 | <1 |
| Nickel | ppm | ASTM D5185m | >4 | 0 | 0 | <1 |
| Titanium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| Silver | ppm | ASTM D5185m | >3 | 0 | 0 | <1 |
| Aluminum | ppm | ASTM D5185m | >20 | 4 | 1 | 3 |
| Lead | ppm | ASTM D5185m | >40 | 3 | 1 | 20 |
| Copper | ppm | ASTM D5185m | >330 | <1 | <1 | 5 |
| Tin | ppm | ASTM D5185m | >15 | <1 | <1 | <1 |
| Vanadium | ppm | ASTM D5185m | | 0 | 0 | <1 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

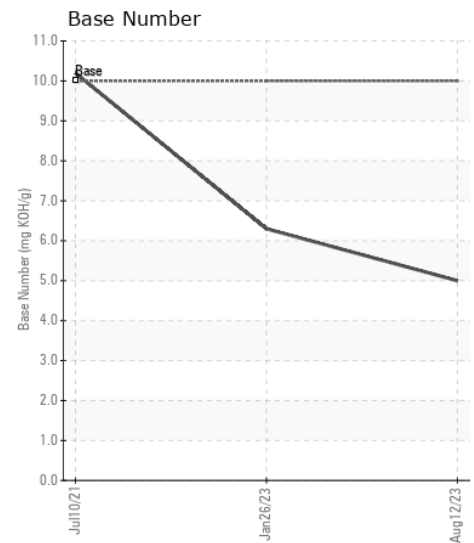
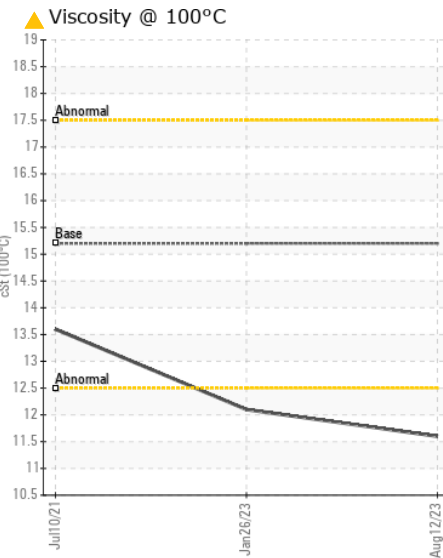
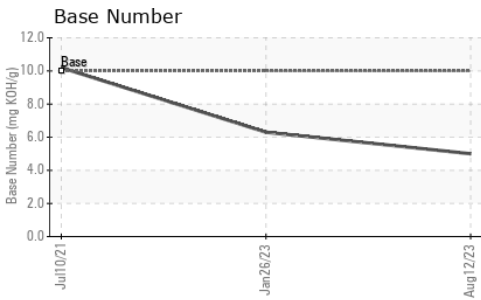
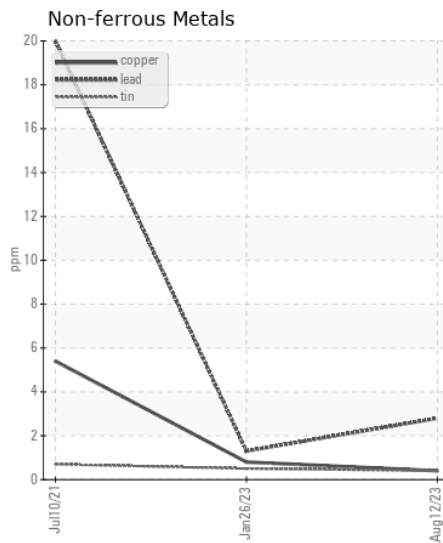
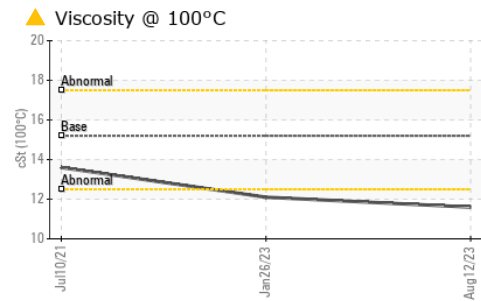
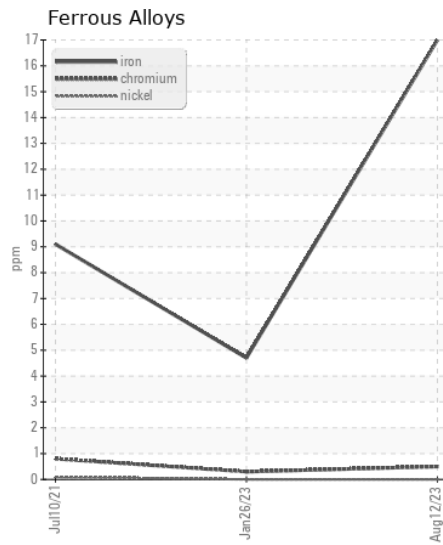
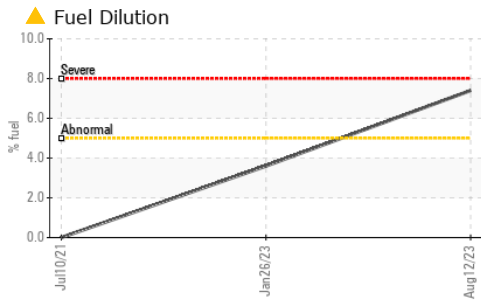
There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

| | | | | | | |
|------------------|----------|-------------|-------|--------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >25 | 4 | 3 | 8 |
| Potassium | ppm | ASTM D5185m | >20 | 5 | 3 | 14 |
| Fuel | % | ASTM D3524 | >5 | ▲ 7.4 | ▲ 3.6 | <1.0 |
| Water | | WC Method | >0.2 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | >3 | 0.7 | 0.3 | 0.1 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 9.6 | 8.5 | 5.1 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 24.8 | 23.0 | 23.2 |
| Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | NEG | NEG |

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

| | | | | | | |
|------------------|----------|-------------|------|---------------|--------|------|
| Sodium | ppm | ASTM D5185m | | 2 | 2 | 38 |
| Boron | ppm | ASTM D5185m | | 71 | 220 | 360 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 0 |
| Molybdenum | ppm | ASTM D5185m | | 18 | 37 | 112 |
| Manganese | ppm | ASTM D5185m | | <1 | <1 | <1 |
| Magnesium | ppm | ASTM D5185m | | 150 | 174 | 643 |
| Calcium | ppm | ASTM D5185m | | 2131 | 1868 | 1409 |
| Phosphorus | ppm | ASTM D5185m | | 871 | 907 | 736 |
| Zinc | ppm | ASTM D5185m | | 1073 | 1156 | 910 |
| Sulfur | ppm | ASTM D5185m | | 4009 | 3740 | 2268 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 23.6 | 20.5 | 15.8 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.0 | 5.0 | 6.3 | 10.2 |
| Visc @ 100°C | cSt | ASTM D445 | 15.2 | ▲ 11.6 | ▲ 12.1 | 13.6 |



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0811890 **Received** : 24 Aug 2023
Lab Number : 05934178 **Tested** : 28 Aug 2023
Unique Number : 10619449 **Diagnosed** : 28 Aug 2023 - Wes Davis
Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel)

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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